

Public Mental Hospital Release Rates in Five States, 1954 and 1960

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CONSIDERABLE PUBLICITY has been given in recent years to the early return of patients to the community after hospitalization for mental illness. These early releases are attributed to the use of new therapeutic agents and methods of treatment. The Joint Information Service of the American Psychiatric Association and the National Association for Mental Health has stated (1):

By 1955 even though the comprehensive community health center concept was still being developed, "community-based psychiatry" had made great strides. At that point a significant new therapeutic agent became available. The first of a great many new psychiatric drugs that altered feeling states without impairing the patient's ability to perceive and think was introduced in the mental hospitals of New York State, following earlier experimental use in Veterans Administration hospitals. The results were immediate and electrifying. Many patients previously not amenable to psychotherapy and milieu therapy were "tranquilized" to the point that they could participate in and benefit from the treatment program. Almost immediately a large number of other psychiatric drugs, both "tranquilizers" and "antidepressants," were developed and introduced; the State systems put them to general use, and it was soon possible to discharge large numbers of long-term patients, and prospects for new patients improved considerably.

It is our purpose in this paper to compare two cohorts of first admissions to public mental hospitals in the years 1954 and 1960. We believe a comparison of these cohorts can measure the

impact of the innovations and improved methods of treatment, open admission policies, and increases in staff.

Background

Public Health Monograph No. 58, entitled "Patterns of Retention, Release, and Death of First Admissions to State Mental Hospitals" (2), presented the results of the 1954 cohort study. A more detailed analysis of the 1960 data will describe the relation between such factors as marital status, race, legal status, and place of residence and the patterns of release, death, and retention. The results will be reported later.

In this paper we compare the probability of release of the 1954 and the 1960 admissions by age, sex, and diagnosis only. The comparison has been confined to five States that submitted comparable data in both studies: Arkansas, California, Louisiana, Minnesota, and New York (Model Reporting Area States).

The 1954 and 1960 cohorts were composed of patients with no prior admission to a State or county hospital, whose release could be con-

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Figure 1. Schizophrenia, both sexes: probability of release within specified periods of time after admission, 1954 and 1960 cohort studies

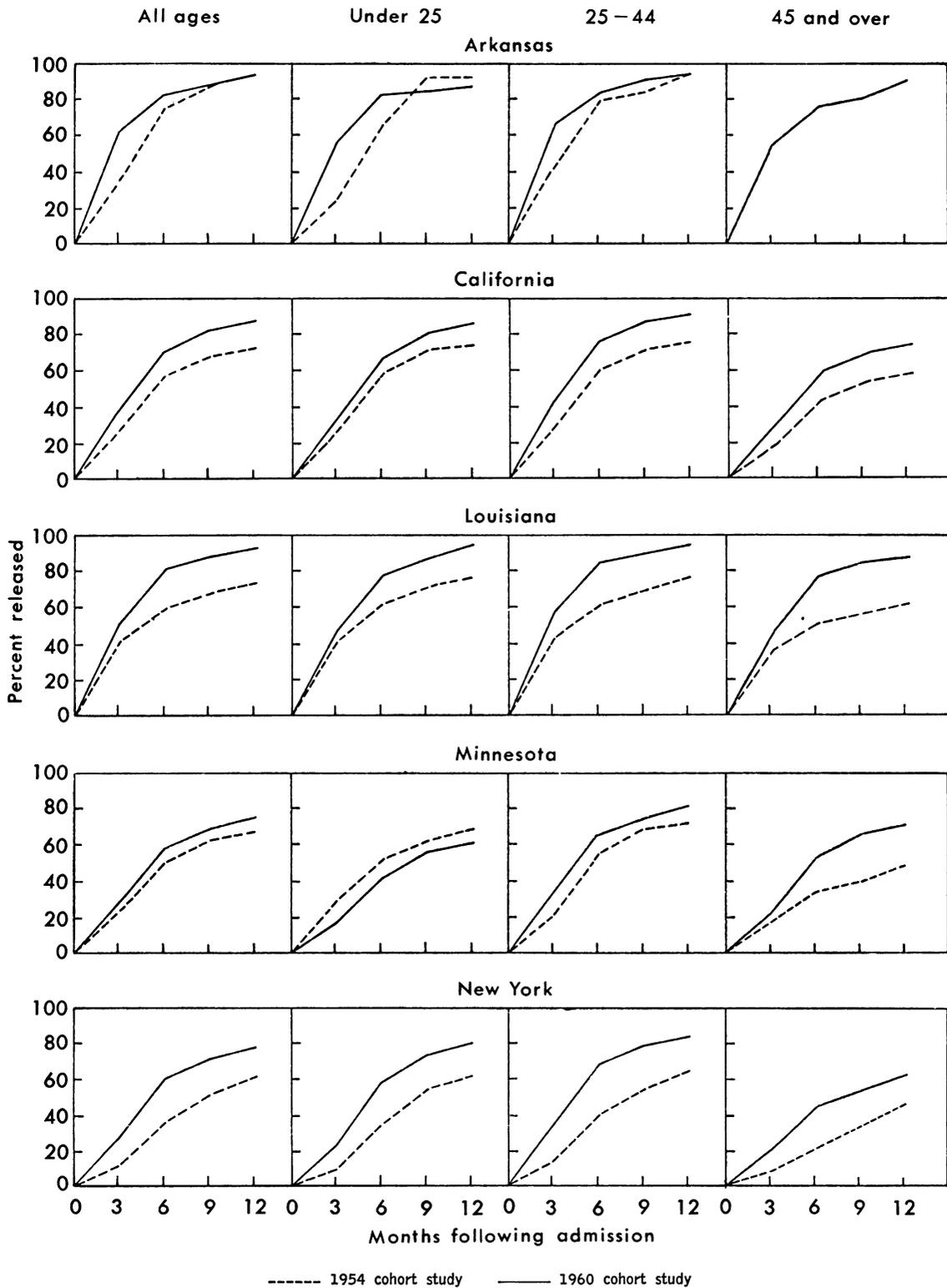


Figure 2. Schizophrenia, males: probability of release within specified periods of time after admission, 1954 and 1960 cohort studies

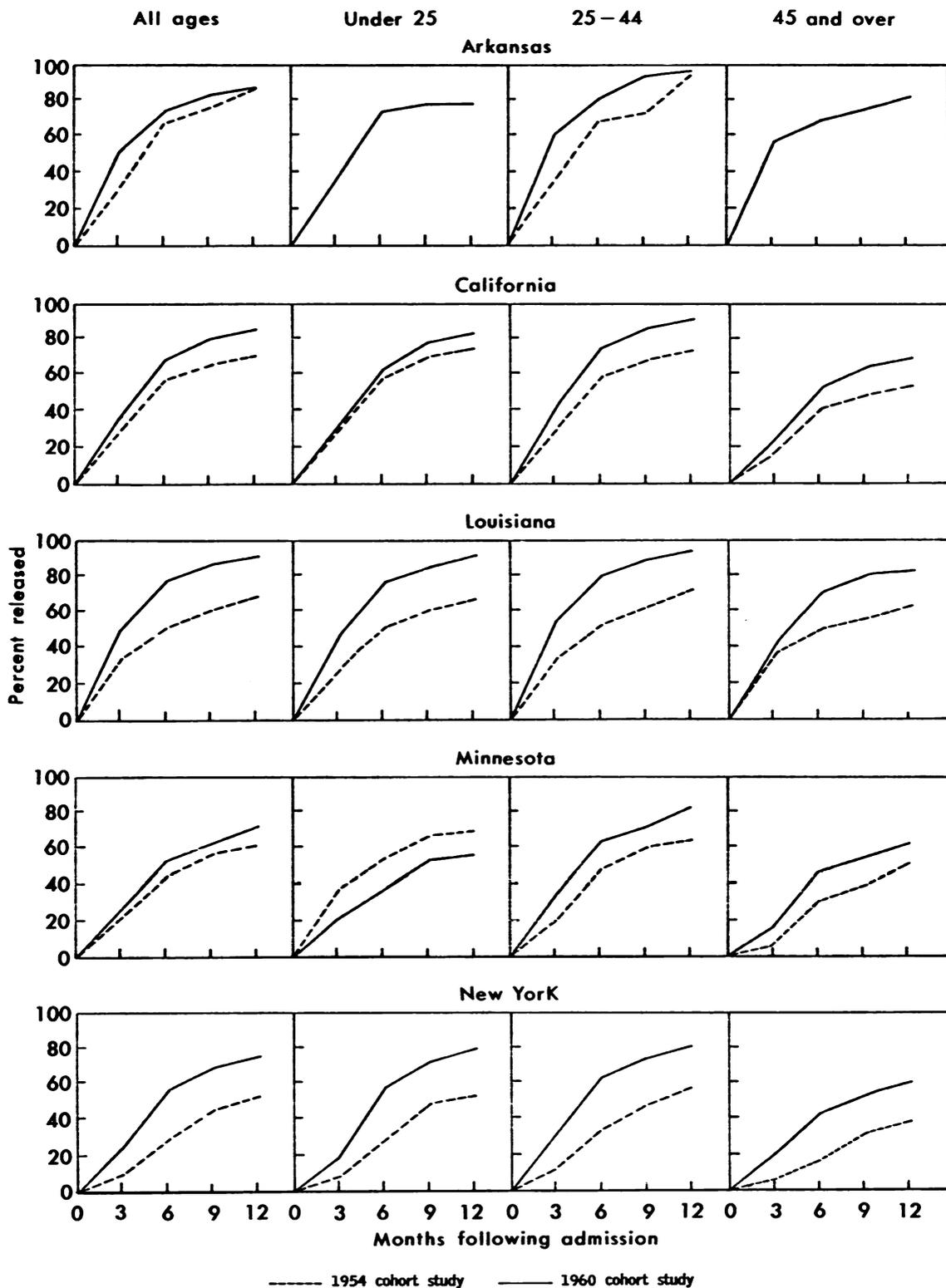
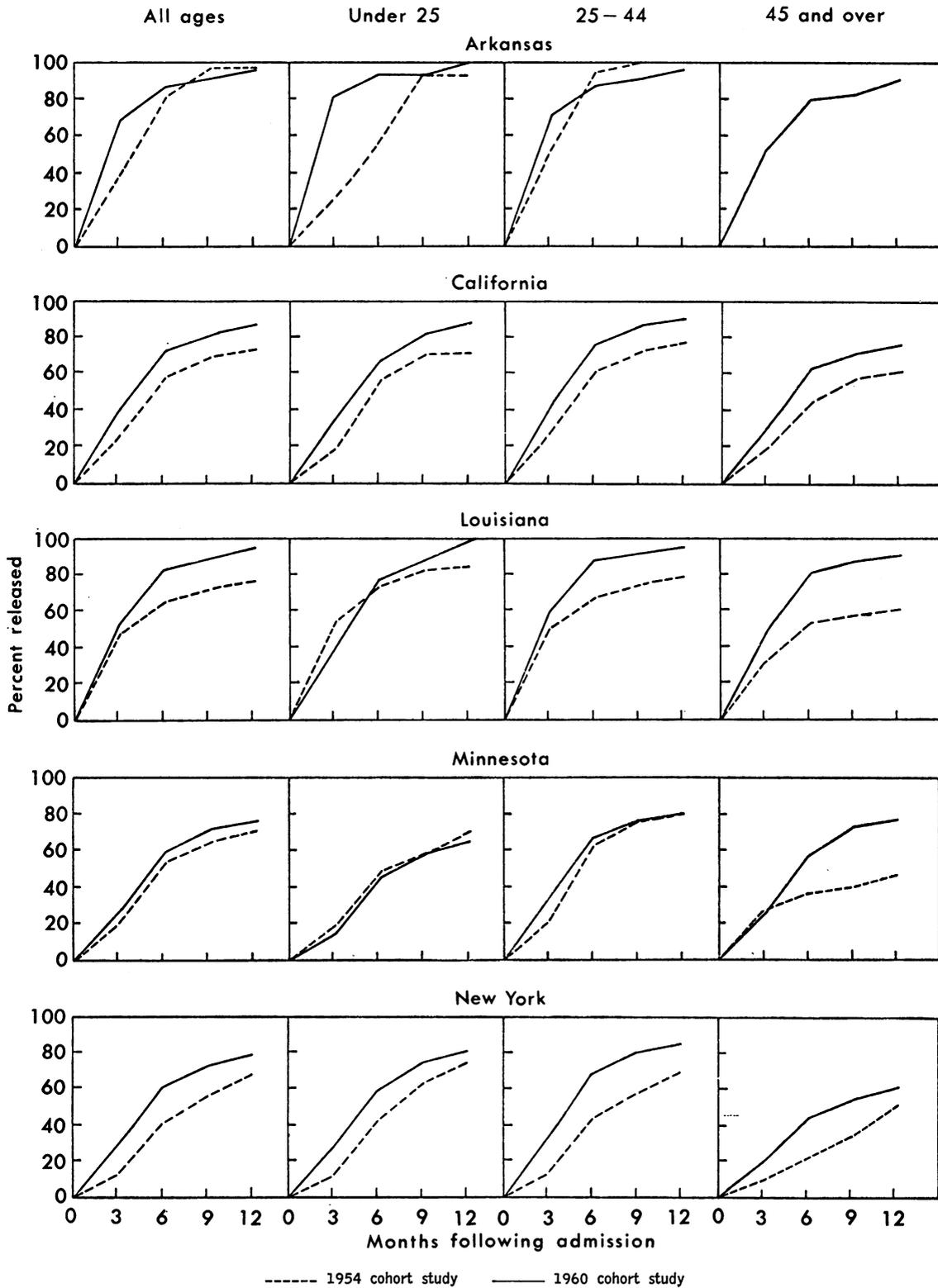


Figure 3. Schizophrenia, females: probability of release within specified periods of time after admission, 1954 and 1960 cohort studies



trolled by the patient or the hospital, and whose diagnosis was either psychosis or diseases of the senium (cerebral arteriosclerosis or senile brain disease). The 1960 cohort data include all first admissions during the year. The 1954 cohort data show variable time periods ranging from 3 months to 2 years.

Method

We used the "first significant release" method of analysis (3), which is defined as the time recorded when one of the following events occurs to a cohort member: (a) he is released from the hospital, (b) he dies in the hospital, or (c) 1 year has elapsed since his admission. Cumulative release probabilities, 3, 6, 9, and 12 months after admission, were compared by sex for the following groups of patients suffering from—

<i>Schizophrenia,</i> <i>age group (years)</i>	<i>Disease of the senium,</i> <i>age group (years)</i>
Under 25	65-74
25-44	75 and over
45 and over	All ages
All ages	

Findings

Our findings reflect differences in the cumulative probability of release in 1954 and in 1960. States with high release rates in 1954 had less chance of increasing the probability of release at a given time interval than States with low release rates. In the following sections, we shall deal first with the cohorts of patients with schizophrenia and then those with diseases of the senium.

Schizophrenia

Ages under 25. A general increase occurred in the release rates during the 1954-60 period among schizophrenics under 25 years of age (table 1). This increase was most apparent in California, Louisiana, and New York for the period 9 to 12 months after admission. The decrease in release rates in Arkansas between 1954 and 1960 can be accounted for by the high release rate in 1954 and the small number of cases. In fact, the release rates would be approximately the same if three more patients had been released. The decline in release rates in Minnesota was mainly attributed to the difference in release rates between the two male co-

horts. The rates of release for the female cohorts were similar. In California, Louisiana, and New York, the release rates for both males and females increased at all time points except the 3-month interval for females in Louisiana (figs. 1-3).

Ages 25-44. The increased release rates in this group were generally of larger magnitude than those in the group under age 25. In this age group, the increases were more general than in the younger schizophrenics. Decreases were noted in Arkansas among the females at the 6-, 9-, and 12-month intervals. The release rates were about the same between 1954 and 1960 for females in Minnesota at the 9- and 12-month intervals and for males in Arkansas at 12 months. Again, the greatest deviation from the pattern occurred in Arkansas, where the number of patients was small, especially in 1954 (19 males and 19 females), and the release rates were very high, making improvement more difficult. Actually, all 19 females in the 1954 cohort in Arkansas were released.

Ages 45 and over. Because of the limited number of cases in this age group in the Arkansas 1954 cohort, comparisons were available for only four States. Again, as in the age group 25-44 years, gains were apparent in the percent released in all States at all intervals and for both sexes, except females in Minnesota at 3 months after admission. The differences in the cumulative rates of release between 1954 and 1960 generally increased as the time after admission increased, indicating that a larger percentage were being released within each subsequent time interval.

All ages. Among schizophrenic patients of all ages, all five States showed an increase in release rates at each time interval except Arkansas, which did not show an increase in 1960 except at 3 and 6 months after admission. Again this State's relatively high 1954 release rates made improvement in its release rate more difficult than for the other States. California, Louisiana, Minnesota, and New York showed large increases at all time periods for both males and females. Minnesota, with decreasing rates in certain age groups, showed an increase for all ages combined but not as great as the others. New York, which had the lowest release rates in 1954, showed the largest increase.

Figure 4. Diseases of senium, both sexes: probability of release within specified periods of time after admission, 1954 and 1960 cohort studies

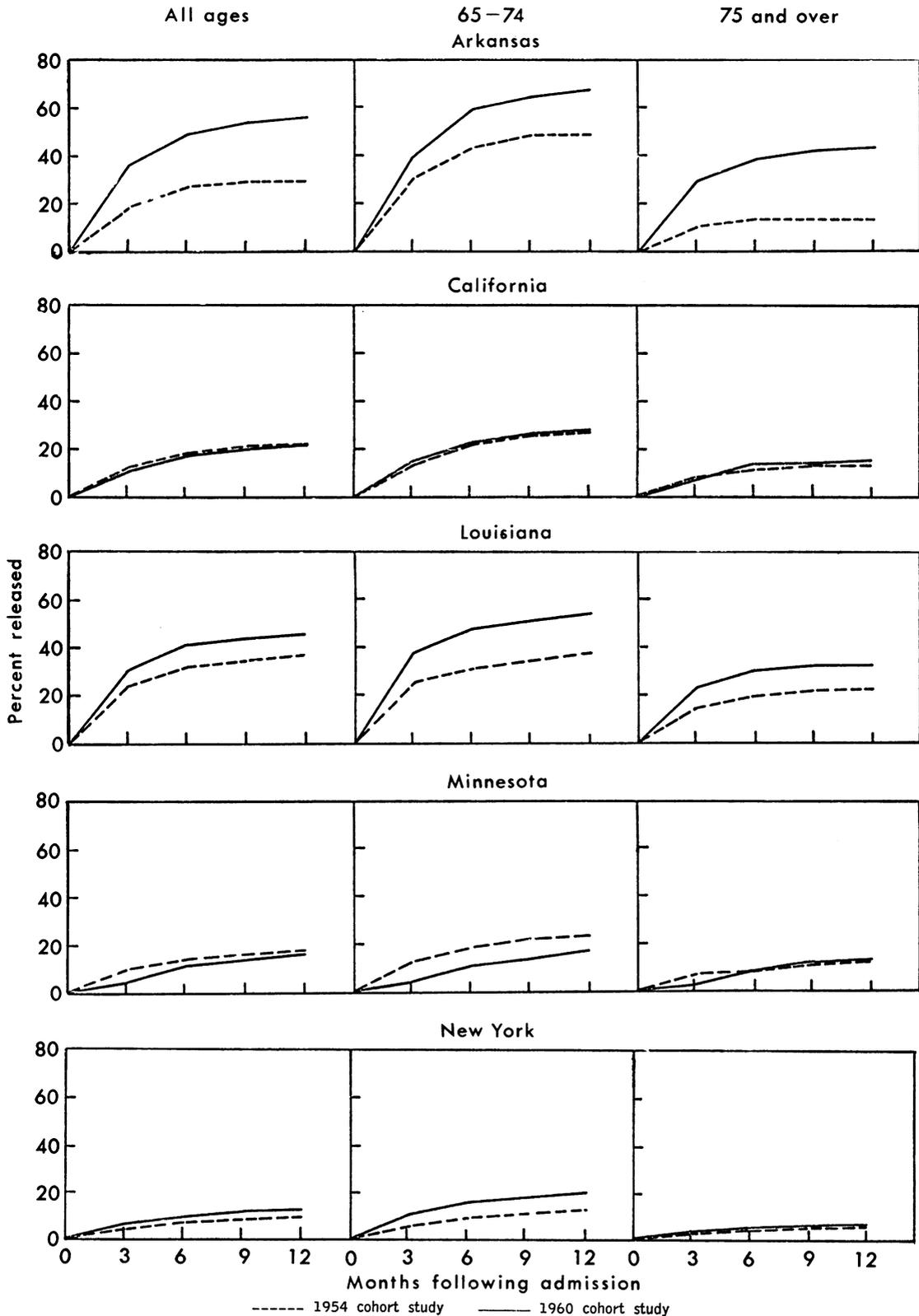


Figure 5. Diseases of senium, males: probability of release within specified periods of time after admission, 1954 and 1960 cohort studies

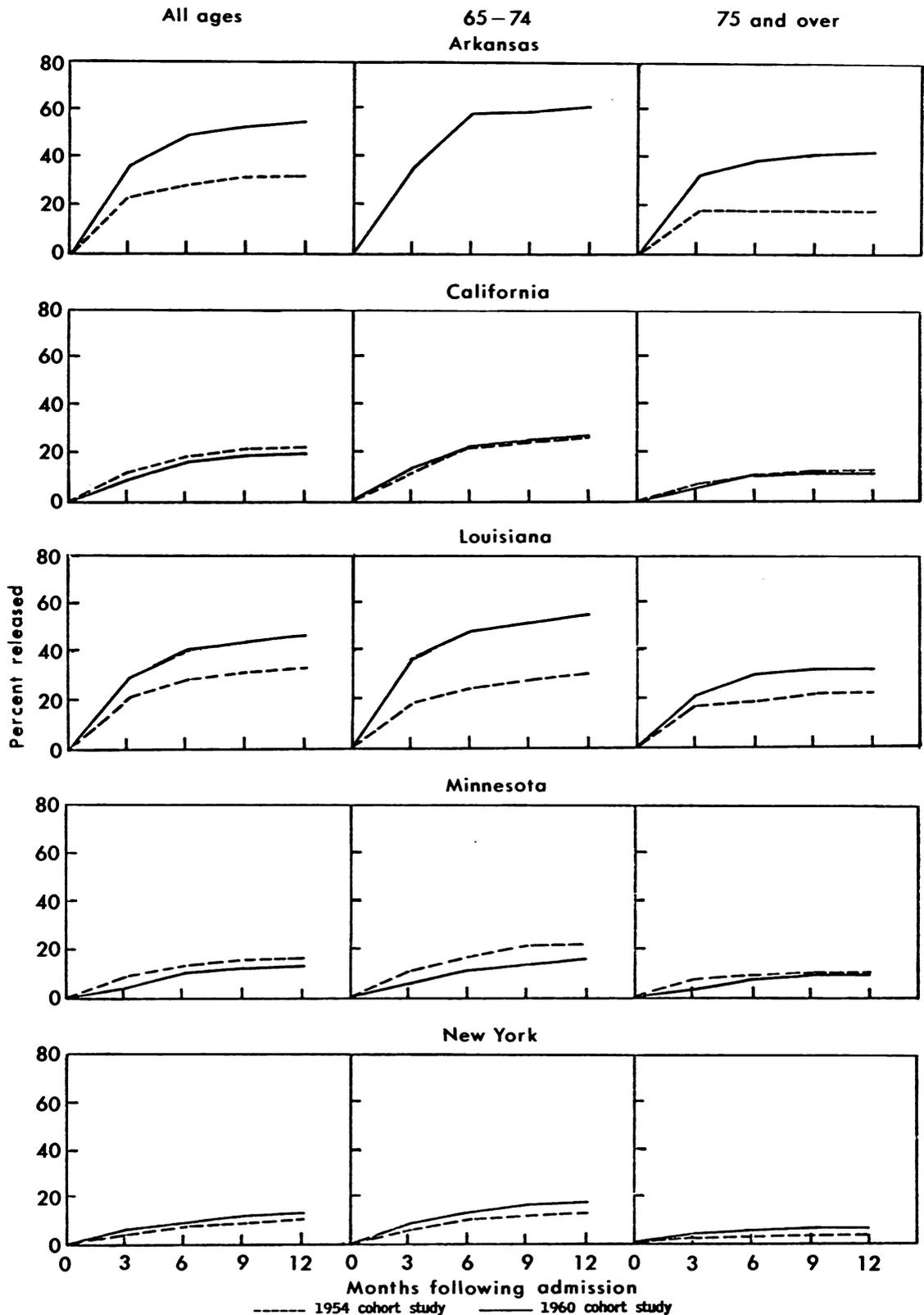


Table 1. Schizophrenia: Percentage of first admissions released within specified periods following admission to State mental hospitals in selected Model Reporting Area States, 1954 and 1960

State	Number in starting cohort		Percent released within—							
			3 months		6 months		9 months		12 months	
	1954 ¹	1960	1954	1960	1954	1960	1954	1960	1954	1960
<i>Both sexes</i>										
All ages:										
Arkansas.....	72	195	34.7	61.0	73.6	81.5	86.1	87.2	91.7	91.8
California.....	² 3,088	3,533	26.2	37.6	56.6	69.9	67.6	81.5	72.2	86.0
Louisiana.....	1,154	569	41.3	52.0	59.5	80.7	68.0	87.9	73.6	92.6
Minnesota.....	² 321	443	21.5	26.9	49.5	56.9	61.1	68.2	66.7	74.3
New York.....	1,182	4,336	11.5	27.0	35.1	58.8	51.1	71.0	61.3	77.2
Under 25:										
Arkansas.....	25	38	24.0	55.3	64.0	81.6	92.0	84.2	92.0	86.8
California.....	578	741	25.1	32.3	57.4	65.2	70.4	80.0	73.9	85.3
Louisiana.....	233	122	40.3	45.9	61.8	76.2	71.7	86.1	76.0	94.3
Minnesota.....	72	91	29.2	17.6	51.4	41.8	62.5	56.0	69.4	61.5
New York.....	318	1,035	9.7	22.5	33.6	57.6	54.1	72.8	61.6	79.7
Ages 25-44:										
Arkansas.....	38	116	42.1	65.5	78.9	83.6	84.2	90.5	94.7	94.0
California.....	1,987	2,118	28.5	42.6	59.8	75.2	70.4	86.0	75.5	90.2
Louisiana.....	739	330	42.9	56.7	60.6	83.9	69.6	89.7	75.6	93.9
Minnesota.....	185	240	20.5	33.3	54.6	65.0	68.1	74.2	71.9	80.8
New York.....	711	2,256	13.2	32.5	39.1	66.5	53.9	78.1	64.7	83.6
Age 45 and over:										
Arkansas.....	(³)	41	(³)	53.7	(³)	75.6	(³)	80.5	(³)	90.2
California.....	521	674	18.4	27.9	42.8	58.2	53.6	68.8	57.8	73.6
Louisiana.....	182	117	36.3	45.3	51.6	76.1	56.6	84.6	62.1	87.2
Minnesota.....	63	112	15.9	20.5	33.3	51.8	39.7	65.2	49.2	70.5
New York.....	153	1,045	7.8	19.3	20.3	43.3	32.7	53.9	45.8	61.1
<i>Males</i>										
All ages:										
Arkansas.....	36	81	30.6	50.6	66.7	74.1	75.0	82.7	86.1	86.4
California.....	² 1,471	1,564	28.1	36.0	55.9	67.4	65.5	79.7	70.3	84.7
Louisiana.....	488	263	33.0	50.6	51.6	76.8	61.1	85.9	68.9	90.1
Minnesota.....	² 167	186	21.0	25.8	44.9	52.7	56.9	62.4	61.7	71.0
New York.....	560	2,033	10.0	24.9	29.3	56.0	45.5	68.1	53.4	75.0
Under 25:										
Arkansas.....	(³)	22	(³)	36.4	(³)	72.7	(³)	77.3	(³)	77.3
California.....	336	426	29.8	30.1	58.3	63.4	70.5	78.2	75.0	83.3
Louisiana.....	123	65	28.5	47.7	50.4	75.4	61.0	84.6	67.5	90.8
Minnesota.....	41	38	36.6	21.1	53.7	36.8	65.9	52.6	68.3	55.3
New York.....	188	605	8.5	19.3	27.7	57.0	47.9	71.6	52.7	79.3
Ages 25-44:										
Arkansas.....	19	43	31.6	55.8	63.2	76.7	68.4	88.4	89.5	90.7
California.....	881	860	30.3	42.6	59.1	74.3	68.1	85.4	73.2	90.4
Louisiana.....	297	148	33.7	54.7	52.2	79.7	62.3	88.5	70.7	92.6
Minnesota.....	92	97	19.6	33.0	46.7	61.9	59.8	70.1	63.0	81.4
New York.....	301	904	12.0	32.0	33.2	62.8	47.5	74.3	57.5	80.3
Age 45 and over:										
Arkansas.....	(³)	16	(³)	56.3	(³)	68.8	(³)	75.0	(³)	87.5
California.....	252	278	17.5	24.8	40.9	52.2	49.2	64.7	53.6	69.4
Louisiana.....	68	50	36.8	42.0	50.0	70.0	55.9	80.0	63.2	82.0
Minnesota.....	33	51	6.1	15.7	30.3	47.1	39.4	54.9	51.5	62.7
New York.....	71	524	5.6	19.1	16.9	42.9	32.4	53.2	39.4	60.9

¹ Figures in reference 2.

² Total includes patients with age unknown.

³ No detail shown because of small number of cases.

Table 1. Schizophrenia: Percentage of first admissions released within specified periods following admission to State mental hospitals in selected Model Reporting Area States, 1954 and 1960—Continued

State	Number in starting cohort		Percent released within—							
			3 months		6 months		9 months		12 months	
	1954 ¹	1960	1954	1960	1954	1960	1954	1960	1954	1960
<i>Females</i>										
All ages:										
Arkansas.....	36	114	38.9	68.4	80.6	86.8	97.2	90.4	97.2	95.6
California.....	1,617	1,969	24.5	38.9	57.2	71.8	69.4	82.9	74.0	87.0
Louisiana.....	666	306	47.4	53.3	65.3	84.0	73.1	89.5	77.0	94.8
Minnesota.....	154	257	22.1	27.6	54.5	59.9	65.6	72.4	72.1	76.7
New York.....	622	2,303	12.9	28.8	40.4	61.3	56.1	73.6	68.5	79.2
Under 25:										
Arkansas.....	16	16	25.0	81.3	56.3	93.8	93.8	93.8	93.8	100.0
California.....	242	315	18.6	35.2	56.2	67.6	70.3	82.5	72.3	87.9
Louisiana.....	110	57	53.6	43.9	74.5	77.2	83.6	87.7	85.5	98.3
Minnesota.....	31	53	19.4	15.1	48.4	45.3	58.1	58.5	71.0	66.0
New York.....	130	430	11.5	27.0	42.3	58.4	63.1	74.4	74.6	80.2
Ages 25-44:										
Arkansas.....	19	73	52.6	71.2	94.7	87.7	100.0	91.8	100.0	95.9
California.....	1,106	1,258	27.1	42.6	60.4	75.8	72.2	86.5	77.4	90.1
Louisiana.....	442	182	49.1	58.2	66.3	87.4	74.4	90.7	79.0	95.1
Minnesota.....	93	143	21.5	33.6	62.4	67.1	76.3	76.9	80.6	80.4
New York.....	410	1,352	14.1	32.9	43.4	69.0	58.5	80.7	70.0	85.7
Age 45 and over:										
Arkansas.....	(²)	25	(²)	52.0	(²)	80.0	(²)	84.0	(²)	92.0
California.....	269	396	19.3	30.0	44.6	62.4	57.6	71.7	61.7	76.5
Louisiana.....	114	67	36.0	47.8	52.6	80.6	57.9	88.0	61.4	91.0
Minnesota.....	30	61	26.7	24.6	36.7	55.7	40.0	73.8	46.7	77.0
New York.....	82	521	9.8	19.6	22.0	43.8	34.1	54.5	51.2	61.4

The increases for males and females were essentially the same in all States except Arkansas and Louisiana at the 3-month interval. In Arkansas the larger rate of increase was for females. In Louisiana the significant increase was for males.

Diseases of the Senium

The release rates for patients with diagnosed diseases of the senium were generally much lower and less subject to change (table 2). Nevertheless, the differences, while not of the same magnitude as for patients with schizophrenia, are noteworthy. The death rates among patients with diseases of the senium were relatively high and of course influenced the release rates. We did not adjust the release rates to account for the deaths, because the death rates were substantially the same for each State between 1954 and 1960 (figs. 4-6).

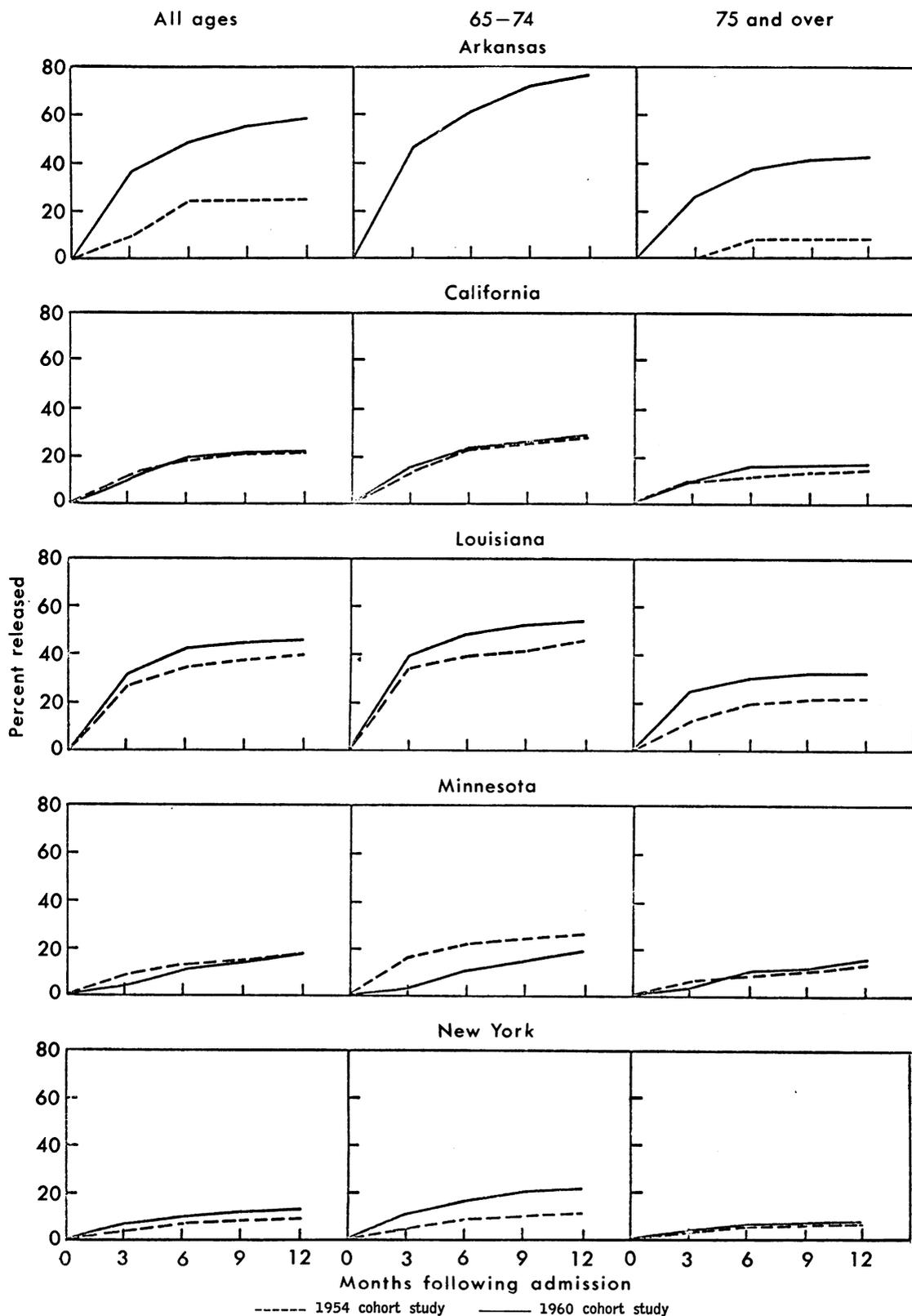
Ages 65-74. Release rates for the age group

65-74 increased in Arkansas, Louisiana, and New York. California's rate stayed about the same and Minnesota's declined. The increase in Arkansas was substantial but perhaps not significant because of the small number of cases reported in the 1954 cohort study. The release rates for this age group were higher than for the total cohort.

A breakdown by sex showed a similar pattern of rate changes for both sexes in four States. Arkansas had too few patients in the 1954 cohort to compute percentages. Louisiana was the only State that showed larger differences in the percentages of males than females released between 1954 and 1960.

Age 75 and over. The pattern of change for patients age 75 and over was similar to that for the age group 65-74 except in Minnesota, where the release rates slightly increased between 1954 and 1960 after the 3-month interval. The largest increases occurred in Arkansas and Louis-

Figure 6. Diseases of senium, females: probability of release within specified periods of time after admission, 1954 and 1960 cohort studies



----- 1954 cohort study ——— 1960 cohort study

Table 2. Diseases of the senium: Percentage of first admissions released within specified periods following admission to State mental hospitals in selected Model Reporting Area States, 1954 and 1960

State	Number in starting cohort		Percent released within—							
			3 months		6 months		9 months		12 months	
	1954 ¹	1960	1954	1960	1954	1960	1954	1960	1954	1960
<i>Both sexes</i>										
All ages:										
Arkansas	58	319	19.0	36.4	27.6	49.5	29.3	53.6	29.3	56.1
California	² 1,887	1,821	11.3	10.4	18.0	17.3	20.6	19.5	21.8	21.0
Louisiana	613	232	24.3	31.0	31.6	41.4	34.6	44.4	36.9	45.7
Minnesota	³ 702	657	9.4	4.6	13.4	10.8	15.5	13.4	17.1	15.8
New York	1,628	4,955	4.2	6.4	7.5	10.1	9.0	12.3	10.0	13.2
65-74 years:										
Arkansas	23	113	30.4	39.8	43.5	59.3	47.8	64.6	47.8	67.3
California	727	571	13.5	15.1	22.8	23.3	25.4	25.9	27.4	28.2
Louisiana	237	102	26.2	38.2	32.1	48.0	35.0	52.0	38.4	54.9
Minnesota	210	223	13.3	4.9	19.5	11.7	23.3	14.8	24.3	17.9
New York	585	1,651	5.6	10.2	9.9	15.7	11.6	19.0	13.2	20.7
75 years and over:										
Arkansas	28	157	10.7	29.9	14.3	38.9	14.3	42.0	14.3	43.3
California	905	1,101	8.2	7.5	11.3	13.1	13.3	14.4	14.1	15.3
Louisiana	187	85	15.0	23.5	19.8	30.6	22.5	32.9	23.0	32.9
Minnesota	433	399	6.9	3.5	9.2	9.3	10.9	11.3	12.7	13.3
New York	814	2,820	2.3	3.6	4.3	5.5	5.2	6.8	5.5	7.3
<i>Males</i>										
All ages:										
Arkansas	38	189	23.7	36.0	28.9	49.7	31.6	52.4	31.6	54.5
California	² 972	855	11.3	9.4	18.2	15.8	20.7	18.6	21.8	19.7
Louisiana	314	111	22.0	29.7	29.0	40.5	32.2	44.1	34.1	46.0
Minnesota	³ 408	373	9.6	4.8	13.5	10.2	15.7	12.3	16.4	13.4
New York	734	2,185	4.5	6.7	7.5	9.9	9.0	12.2	10.5	13.0
65-74 years:										
Arkansas	(⁴)	67	(⁴)	35.8	(⁴)	58.2	(⁴)	59.7	(⁴)	61.2
California	406	281	13.5	14.6	22.7	22.4	24.9	25.3	26.4	26.7
Louisiana	122	54	18.9	37.0	25.4	48.2	28.7	51.9	32.0	55.6
Minnesota	125	132	11.2	6.1	17.6	12.1	22.4	14.4	23.2	16.7
New York	280	793	6.4	9.8	10.7	14.1	12.9	17.3	14.6	18.9
75 years and over:										
Arkansas	16	88	18.8	33.0	18.8	39.8	18.8	42.1	18.8	43.2
California	436	490	6.9	5.5	10.6	10.6	13.1	12.2	14.0	13.1
Louisiana	92	42	17.4	21.4	19.6	31.0	22.8	33.3	23.9	33.3
Minnesota	249	225	7.6	3.6	10.0	8.4	11.2	10.7	12.0	11.1
New York	346	1,145	2.0	4.1	3.2	5.8	3.5	7.0	4.0	7.3
<i>Females</i>										
All ages:										
Arkansas	20	130	10.0	36.9	25.0	49.2	25.0	55.4	25.0	58.5
California	² 915	966	11.4	11.3	17.8	18.6	20.4	20.4	21.9	22.2
Louisiana	299	121	26.8	32.2	34.4	42.2	37.1	44.6	39.8	45.5
Minnesota	³ 294	284	9.2	4.2	13.3	11.6	15.3	14.8	18.0	19.0
New York	894	2,770	3.9	6.2	7.5	10.2	8.9	12.3	9.6	13.4
65-74 years:										
Arkansas	(⁴)	46	(⁴)	45.7	(⁴)	60.9	(⁴)	71.7	(⁴)	76.1
California	321	290	13.4	15.5	23.1	24.1	26.2	26.6	28.7	29.7
Louisiana	115	48	33.9	39.6	39.1	47.9	41.7	52.1	45.2	54.2
Minnesota	85	91	16.5	3.3	22.4	11.0	24.7	15.4	25.9	19.8
New York	305	858	4.9	10.6	9.2	17.1	10.5	20.6	11.8	22.4
75 years and over:										
Arkansas	12	69	0	26.1	8.3	37.7	8.3	42.0	8.3	43.5
California	469	611	9.4	9.2	11.9	15.1	13.4	16.0	14.3	17.0
Louisiana	95	43	12.6	25.6	20.0	30.2	22.1	32.6	22.1	32.6
Minnesota	184	174	6.0	3.5	8.2	10.3	10.3	12.1	13.6	16.1
New York	468	1,675	2.6	3.2	5.1	5.4	6.4	6.7	6.6	7.3

¹ Figures in reference 2.

² Includes patients with age unknown.

³ No detail shown because of small number of cases.

iana. The probability of release in this age group continued to be very low for the New York cohort.

All ages. The rate of release increased between 1954 and 1960 among all patients with diseases of the senium in Arkansas, Louisiana, and New York State. The release rate declined slightly in California and Minnesota. In California the very slight decline in rates for both sexes combined was attributed to the decline in release rates for males. The rate for females increased slightly. In Arkansas and Louisiana the increases were quite substantial. Generally, these increases were present at 3 months and remained constant through the 12 months following admission.

Discussion

We have applied the data collected in two cohort studies to document the changes in the probability of first release among first admissions to mental hospitals.

We have left unanswered some important questions such as what caused the change in first release rates. Many factors have contributed to this change, some more important than others. The extensive use of drugs probably was the most important factor during this period. The use of drugs has led to many changes in the care and treatment of the mentally ill.

Another unanswered question is: What do higher release rates mean? Do they mean that more cures have been effected or do they reflect a change in attitude on the releasing of patients? Such factors as a change in attitude in the communities toward newly released mental patients or the ability of patients to maintain themselves outside the hospital because of drugs may raise the release rate while not affecting the rate of cure.

To answer such questions, a different study design is needed, and in particular an experimental design in which some of these factors can be controlled. However, even in experimental designs the assessment of a patient's clinical progress is difficult and depends on a great number of factors. This means that much data are needed, and even then it is difficult to

isolate the effects of treatment from other factors (4).

Despite these limitations, there is a great need to identify the changes taking place, and first release is one of the more important criteria for measuring these changes.

Summary

Two groups of patients first admitted to State and county mental hospitals in five States (Arkansas, California, Louisiana, Minnesota, and New York) in 1954 and 1960 were studied. First release rates of cohorts of patients with schizophrenia and diseases of the senium were compared.

The "first significant release" method of analysis was used. It appears that members of the 1960 cohort with schizophrenia or diseases of the senium were released earlier and at a higher rate than members of the 1954 cohort. Since the years considered represent a time period before and after the widespread introduction of new therapeutic agents and the institution of more intensive treatment modalities, we believe the data reflect the influence of these two factors.

Because this study included only five States, it is impossible to generalize the findings for the United States. It is clear from the data presented that the changes, although general within the five States, did not occur in all age groups, in both sexes, or in all the reporting States.

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